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ABSTRACT

An experimentally designed investigation determined differential effects of independent study, lecture with discussion, and film instructional methodologies in changing attitudes toward disabled individuals held by trade and industrial teachers. Differential effects of selected demographic variables were also measured as were specific attitudes of teachers regarding work with handicapped students as reflected in the Personality Characteristics, Special Treatment, and Disabled in School subscales of the Attitude toward Disabled Persons instrument. Trade and industrial teachers participating in a new teacher institute and teachers from a southern state were randomly assigned to three groups who received instruction by the three different methods. Significant ANOVA differences were found between pre- and post-measures and among the instructional methodologies; significant interaction effects were also found. Participant attitudes toward disabled persons were related to family and professional experience. No discernible differences were found between secondary and postsecondary teachers. Results also indicated a lack of relationship between years of teaching experience and manifested attitudes. The interaction between group and pretest/posttest scores presented the largest simple main effect for the lecture group between pre- and post. Results indicated a need for attitudinal improvement of trade and industrial teachers toward handicapped students. (YLB)

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Abstract

Effects of Different Instructional Methodologies and Selected Demographic Variables on Attitudes of Secondary and Postsecondary Trade and Industrial Teachers Toward Handicapped Persons is an experimentally designed investigation to determine differential effects of independent study, lecture, and film methodologies in changing attitudes toward the disabled of trade and industrial teachers. Differential effects of selected demographic variables were also measured. Significant ANOVA differences were found between pre and post measures and among the instructional methodologies as well as significant interaction effects. The findings have implications for the training and preparation of trade and industrial teachers concerning teaching the handicapped.

Effects of Different Instructional Methodologies and Selected Demographic Variables on Attitudes of Secondary and Postsecondary Trade and Industrial Teachers Toward Handicapped Persons

The case could be made that outstanding teachers want to become involved in providing an opportunity to handicapped students. However, a lack of training in dealing with disabling conditions has compromised some teachers. Hughes (1978) felt that with proper information and training teachers would develop a more positive attitude toward handicapped students. Donaldson and Martinson (1977) found that preservice teachers' attitudes toward the handicapped were improved by exposing the preservice teachers to situations involving disabled students. Higgs (1975) also found that a combination of information and contact with a handicapped person were of great benefit in improving a teacher's understanding and attitude.

Bruwelheide (1979) wrote: "The greatest barriers may be those which are not immediately seen, those of administrator and teacher attitude, anxiety, and non-understanding of the handicapped individual" (p. 5). Since teachers have the most continuous and immediate contact with handicapped students, it would seem important to study the relationship between exposure to

information about the handicapped, use of instructional methods, and changes in attitudes toward handicapped persons.

Gearhart and Weisha (1979) attest to the need for improvement of inservice training for serving handicapped youth. Most states have provided special inservice, workshops, or other means to provide teachers training in this problem area. Approximately 70% of all children identified as handicapped spend some portion of their school day in regular classrooms (Lakin & Reynolds, 1983). However, too few studies have been conducted to determine definitively teacher attitudes toward handicapped students or to evaluate inservice opportunities concerning the disabled in regular educational settings (Iverson & Davis, 1981).

Traditionally, trade and industrial teachers have entered education from work settings rather than from teacher preparation programs. The conceptual content of the education courses taken to provide pedagogical skills may not have prepared trade and industrial teachers to educate handicapped students who have enrolled in the occupational programs they teach. A study of attitudes toward disabled persons might be helpful for understanding classroom environments in which handicapped students may find themselves. Should those environments be less than desirable, such a study also might suggest areas for additional

professional preparation for trade and industrial teachers. Moreover, among other studies, the International Association for Evaluation of Achievement in Education (IEA) study of classroom environments has demonstrated that the teacher is a very important contributor to observed variance in student achievement (Regan & Anderson, 1984).

Purpose of the Study

The purposes of the study were to determine effects of utilizing different instructional methodologies, different levels of instruction and selected demographic variables on attitudes of trade and industrial teachers toward handicapped persons. The specific objectives were to:

1. Measure specific attitudes regarding work with handicapped students of trade and industrial teachers as reflected in the Personality Characteristics, Special Treatment, and Disabled in School Sub-scales of the Attitude Toward Disabled Persons (ATDP) instrument.

2. Compare measured ATDP sub-scale scores with sub-scale scores based on chance responses to ATDP items.

3. Determine what effects different instructional methodologies, as reflected in changes between pre-intervention and post-intervention scores have upon attitudes of trade and

industrial teachers working with handicapped students.

4. Determine if systematic differences in attitude exist between secondary and postsecondary trade and industrial participants.

5. Determine joint effects of pairs of independent variables selected from preliminary tests on the model.

6. Determine the influence of ATDP scores of selected demographic variables for trade and industrial teachers enrolled in a new teacher institute.

Research Methodology

A three-group, randomized pre/post experimental design was utilized. Subjects were randomly assigned to three groups and the groups were randomly assigned to instructional methodologies as (1) self-paced independent study, (2) lecture with discussion, and (3) film. Each methodology contained the same conceptual content dealing with problems and needs of physically disabled students. Conceptual content for the three sessions was controlled by the film, The Invisible Barrier (Disability Information Center) which was used unedited. A self-paced instructional module for independent study was constructed from the verbal and visual conceptual content of the film. A narrative transcription of the film for traditional lecture was developed with supplemental

verbal descriptions of those concepts visually presented. The treatment was provided during a one hour session as part of a one week new teacher institute. Prior to the beginning of the institute, pre-intervention data were collected. The experimental treatment was administered before any other session related to teaching handicapped students. The three groups were treated in regular classrooms at the workshop site. The three treatments occurred simultaneously under supervision of three professional educators. Educators in the film and independent study groups assured that participants attended to the task. The educator in the lecture group presented the lecture. There was a prior meeting of the three educators who facilitated the treatments to discuss procedures that would ensure effective control for the three presentations to be as identical as possible. The post-intervention instruments were completed immediately following the treatment sessions.

In order to guide the study, five null hypotheses were formulated and tested.

Ho_1 ATDP scores for the population represented by the described sample of trade and industrial teachers prior to treatment

will not differ significantly from neutral (item means of 3.0) on the Attitudes Toward Disabled Persons (ATDP) instrument.

Ho_2 There will not be a significant difference between the pre/post intervention ATDP scores.

Ho_3 There will not be a significant difference among the three methods of instruction (independent study, lecture, and film) in accounting for observed attitudes toward disabled students as measured by the ATDP instrument.

Ho_4 ATDP scores of secondary and postsecondary teachers will not differ significantly.

Ho_5 ATDP pre/post scores will not differ statistically when partitioned on values for selected demographic variables.

Instrumentation

A validated attitude assessment, "Attitudes Toward Disabled Persons," (ATDP) was selected for the study (Yuker, Block & Campbell, 1960). The original instrument contained 30 items in two sub-scales. Five items relating to vocational education were added to the ATDP instrument by Iverson and Davis (1981) in order to clarify views of teachers toward specific educational situations. The revised 35-item ATDP instrument has three sub-scales. The Personality Characteristics Sub-scale has 19

items specifically referring to similarities or differences in personality characteristics of disabled persons. The Special Treatment Sub-scale has 11 items dealing with the special treatment of disabled persons. Five of the items refer to special treatment in educational situations and these five items comprise the Disabled in School Sub-scale. The ATDP instrument uses a 1-5 Likert scale, with 1 being strongly disagree and 5 being strongly agree. The sense of scaling for some of the Likert items was reversed, as recommended by the ATDP authors, before those items were accumulated into sub-scale scores for multivariate analyses. Any missing data from individual response categories were eliminated in the data analysis by listwise deletion in the GLM procedure of SAS.

Reliabilities of the instrument in this study ranged from .82 to .91 for all 35 items and from .34 to .73 for the five-item Disabled in School Sub-scale using Cronbach's Coefficient Alpha. Content validity has been established by comparisons with other studies (Trussell, Walters, N.J., Davis, Avery, & Walters, F.T., 1984).

Population

Trade and industrial teachers participating in a new teacher institute were randomly assigned to three groups to participate in

the experimental study. Group 1 (n = 16) received instruction by self-paced independent study, Group 2 (n = 16) received instruction by lecture, and Group 3 (n = 16) received instruction by viewing a film. Assignment of groups was random. The sample of trade and industrial teachers from a southern state was also partitioned by levels of instruction into components labeled secondary (n = 27) and postsecondary (n = 21). By level, the teachers were randomly divided equally for three instructional methods.

Twenty-eight of the teachers reported that they were entering their first year of teaching. Three group leaders had more than 4 years of teaching experience. Thirty-eight of the teachers had more than 4 years of occupational experience prior to entering education. Thirteen of the teachers had experience with handicapped persons in their families. Thirty-six of the participants had taken no special course work to prepare them to teach handicapped students; however, nineteen of the participants had experience teaching students with handicaps. Eighteen of the teachers had completed only high school, five had the Associate of Arts degree, sixteen had a Bachelors degree, one had a Masters degree and six indicated "other" as a degree category.

Results

Post hoc ANOVA's for each sub-scale by observed vs neutral type of results produced significant type differences on all three sub-scales with observed values being more positive than neutral on only the Disabled in School Sub-scale. It is not clear why observed values were less than neutral on the Personality Characteristics and Special Treatment Sub-scales.

Table 1 summarizes MANOVA of the three ATDP sub-scales for observed data broken down by variables implicit in the hypothesis statements. The variables were entered sequentially with pre/post and group membership in the first and second positions because of experimental relevance, followed by demographic variables in an order reflecting developmental experiences of practicing trade and industrial teachers.

Interactions in Table 1 were developed in a two stage process. Because of a degrees of freedom limitation, not all potential two-way interactions could be included in the model. The first stage was a preliminary analysis for filtering those interactions having the greatest potential for a systematic contribution in the final model. It is those interactions that were retained in the second stage MANOVA procedure reported for the final model in Table 1.

Significant multivariate differences were found for six main effects: pre/post, treatment group, having or not having a handicapped member in the family, years of occupational experience, number of special courses concerning the handicapped, and experience in teaching handicapped. Three two-way interactions were also significant: handicapped member in the family by experience teaching handicapped, handicapped member in the family by secondary-postsecondary teaching level, and experience teaching the handicapped by professional degree earned. Number within group [number(group)] is significant and is in the model out of statistical necessity to control for repeated measures.

Univariate analyses performed post hoc to the MANOVA produced two significant main effects and two significant interaction effects on the Personality Characteristics Sub-scale. There were no systematic differences between independent study ($\underline{m}$ = 55.38) and lecture ($\underline{m}$ = 55.84), but both of these groups scored significantly higher than the film group ($\underline{m}$ = 53.31). Those having taught ($\underline{m}$ = 30.92) handicapped as a group were more

positive than those not having taught ($\underline{m}$ = 29.67) handicapped students. Cell means for the two significant two-way interactions are presented in Table 2. It may be observed that the largest differences are associated with simple main effects for 1) having taught handicapped cells ($\underline{m}$ = 58.08 vs $\underline{m}$ = 54.65) in the handicapped family member by taught handicapped interaction, and 2) the postsecondary cells ($\underline{m}$ = 58.62 vs 54.35) of the handicapped family member by level of instruction interaction.

Univariate analyses of the Special Treatment Sub-scale produced three significant main effects and three significant interaction effects. There was a significant difference between pre-intervention ($\underline{m}$ = 30.69) and post-intervention ($\underline{m}$ = 29.65) sub-scale scores, between having ($\underline{m}$ = 30.96) and not having ($\underline{m}$ = 29.87) a handicapped family member, and between first year teachers ($\underline{m}$ = 33.53) and third year teachers ($\underline{m}$ = 29.72). Cell means for the three significant interactions are presented in Table 2.

The largest simple main effect for the Special Treatment Sub-scale for the interaction between taught handicapped and

Table 1

MANOVA of Attitudes Toward Disabled Persons

	df	Personality Characteristics F	Personality Characteristics p	Special Treatment F	Special Treatment p	Disabled in School F	Disabled in School p
Univariate Model	50	3.90	.0001	2.29	.0027	4.06	.0001
R-Square		.8126		.7181		.8185	

Source	MANOVA					Univariate F Tests						
						Personality Characteristics			Special Treatment		Disabled in School	
	Wilks Lambda	F	Num df	Den df	p	df	F	p	F	p	F	p
Pre/Post	.710	Fe=5.87	3	43	.01*	1	2.15	.15	5	.03*	7.54	.01*
Group	.755	Fe=2.16	6	86	.05*	2	6.47	.01*	.57	.57	.03	.97
Handicapped Family Member	.768	Fe=4.34	3	43	.01*	1	.88	.35	5.64	.02*	4.19	.05*
Years of Occupational Experience	.559	Fe=3.14	9	104	.01*	3	1.57	.21	3.67	.02*	3.98	.01*
Number of Courses	.489	Fe=3.98	9	104	.01*	3	.53	.66	1.48	.23	10.72	.00*
Secondary/ Postsecondary (Sec)	.934	Fe=1.02	3	43	.39	1	1.00	.23	0.00	.95	2.08	.16
Years of Teaching Experience	.689	Fe=1.93	9	104	.06	3	2.62	.06	2.06	.12	.88	.46
Taught Handicapped (Taught)	.637	Fe=8.18	3	43	.01*	1	4.39	.04*	2.12	.15	15.40	.00*
Degree	.840	Fe=1.31	6	86	.26	2	1.69	.50	.75	.48	2.12	.13
Pre/Post by Group	.796	Fe=1.73	6	86	.12	2	1.05	.36	.54	.58	3.55	.04*
Hanid by Taught	.638	Fe=8.13	3	43	.01*	1	8.05	.01*	7.10	.01*	5.94	.02*
Hanid by Sec	.605	Fe=9.35	3	43	.01*	1	16.98	.01*	5.28	.03*	3.57	.06
Taught by Degree	.662	Fe=3.28	6	86	.01*	2	1.99	.15	3.73	.03*	3.12	.05*
Number (Group)	.047	Fe=2.85	81	129	.01*	27	4.71	.01*	2.10	.01*	3.70	.00*

*Significant at alpha = .05 level

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Table 2

Cell Means for Significant Interaction Effects on ATDP sub-scales

Personality Characteristics			Special Treatment		Disabled in School	
Source	Handicapped Family Member		Handicapped Family Member		Handicapped Family Member	
Taught Handicapped	Yes	No	Yes	No	Yes	No
Yes	58.08	54.65	32.67	30.11	15.00	17.96
No	53.21	54.59	29.50	29.73	19.50	18.57
Level of Instruction						
Sec	54.06	54.86	30.67	30.08		
Postsec	58.62	54.35	31.62	29.65		

Educational Level	Taught Handicapped	
	Yes	No
High School	54.06	55.54
One or Two year Postsec Program	58.20	53.50
B.S. degree Or higher	55.91	53.46

Group	Pre/Post	
	Pre	Post
Independent Study	17.50	18.56
Lecture	16.94	19.38
Film	18.19	18.00

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handicapped family member was at the level of having taught handicapped. Simple main effects for the handicapped family member values conditioned by having taught handicapped were associated with means of 32.67 (for those having a handicapped family member) and 30.11 (for those not having a handicapped family member).

The largest simple main effect for the interaction between level of instruction and handicapped family member was at the level of having a handicapped family member. Simple main effects for level of instruction values conditioned by having a handicapped family member were associated with means of 31.62 (postsecondary) and 30.67 (secondary).

The largest simple main effect for the interaction between education level and taught handicapped was at the level of having taught handicapped. Simple main effects for educational level conditioned by having taught handicapped were associated with means of 58.20 (for one or two year postsecondary programs) and 54.06 (for high school).

For the Disabled in School Sub-scale, there were univariate significant differences for four main effects and two interactions. There was a significant improvement in attitude between pre ($\underline{m}$ = 17.54) and post ($\underline{m}$ = 18.65) measures and a

significant difference between two years of occupational experience ($\underline{m}$ = 18.81) and one year ($\underline{m}$ = 16.25). There was a significant difference between every possible contrast for number of courses taken concerning the handicapped. The general trend in attitude toward handicapped on the Disabled in School Sub-scale is decreasing with increase in number of courses: the mean for no courses was 17.97, for one course 19.78, for two courses 16.25, and for four courses 11.00 (there were no participants with three courses or more than four courses). Those participants who had experience teaching handicapped students tended to have more positive attitudes ($\underline{m}$ = 30.92) than those without experience ($\underline{m}$ = 29.67). Table 2 presents cell means for the significant interactions for the Disabled in School Sub-scale.

For the Disabled in School Sub-scale, the largest simple main effects for taught handicapped by the handicapped family member interaction is associated with having a handicapped family member. Surprisingly, participants with handicapped family members who have experience teaching handicapped tend to have more negative attitudes toward handicapped ($\underline{m}$ = 15.00) than participants in any other cell. The most positive attitude ($\underline{m}$ = 19.50) is in a cell for no experience teaching handicapped.

The interaction between group and pre/post presents the largest simple main effect for the lecture group between pre ($\underline{n}$ = 16.94) and post ($\underline{n}$ = 19.38). Perhaps this is a consequence of discussion opportunities utilized with the lecture group.

Summary

An anomaly was uncovered in the analysis of the neutral vs observed scores for the ATDP Sub-scales. Univariate analyses showed that participants tended to score more positive than chance on only the Disabled in School Sub-scale. Generally, the nine independent variables with four interactions and a nested repeated measures variable accounted for acceptable proportions of variability on the ATDP Sub-scales. Accountability ranged between 71.8 percent for the Special Treatment sub-scale and 81.85 percent for the Disabled in School Sub-scale.

It is clear that attitudes of participants toward disabled persons are related to family and professional experiences. It is not possible, however, to generalize that any one experience (main effect) influences attitudes on all three sub-scales. Surprisingly, there were no discernable differences between teachers from secondary vs postsecondary levels. Also surprising was the lack of relationship between years of teaching experience and manifested attitudes. Highest degree held contributed to

understanding attitudes only through its interaction with having or not having taught handicapped students.

It would appear that additional studies should be undertaken for more precise refinement of the relationships existing between experiences of trade and industrial teachers and their attitudes toward handicapped students. It also appears that there is sufficient evidence for attitudinal improvement of trade and industrial teachers toward handicapped students. Thus, specific provisions in the certification requirements of State Departments of Education should be evaluated and possibly revised in ways that insure trade and industrial teachers are prepared to work with the handicapped before being credentialed. Furthermore, teacher educators should employ various strategies to incorporate specific activities regarding teaching the handicapped into college and university curricula.

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